What is claimed is:

1. A field emission array comprising:

a rear substrate assembly including:

a rear substrate;

a plurality of cathodes formed as stripes over the rear substrate; and

a plurality of carbon nanotubes formed on the plurality of cathodes at a predetermined distance; and

a front substrate assembly including:

a front substrate;

a plurality of anodes formed as stripes over the front substrate;

a plurality of phosphors deposited on the plurality of anodes;

a nonconductive plate having a plurality of openings separated by a predetermined distance corresponding to the distance between each of the plurality of anodes;

a plurality of gates formed as stripes perpendicular to the stripes of the plurality of anodes on the nonconductive plate with a plurality of emitter openings corresponding to the plurality of openings in the nonconductive plate; and

a plurality of spacers for supporting and separating the nonconductive plate having the plurality of gates from the rear substrate by a predetermined distance,

wherein the rear substrate assembly and the front substrate assembly are combined so that the plurality of carbon nanotubes on the plurality of cathodes project through the plurality of emitter openings at a predetermined distance from the plurality of gates.

2. A field emission array comprising:

a rear substrate assembly including:

a rear substrate;

a plurality of cathodes formed as stripes over the rear substrate; and

a plurality of carbon nanotubes formed on the plurality of cathodes at a predetermined distance; and

a front substrate assembly including:

a front substrate;

a plurality of anodes formed as stripes over the front substrate;

a plurality of phosphors deposited on the plurality of anodes;

a first and a second nonconductive plate, each having a plurality of openings separated by a predetermined distance corresponding to the distance between each of the plurality of anodes;

a plurality of gates formed as stripes perpendicular to the stripes of the plurality of anodes on the first nonconductive plate with a plurality of emitter openings corresponding to the plurality of openings in the first nonconductive plate, wherein the distance between the plurality of gates and the plurality of carbon nanotubes is reduced; and

a plurality of spacers for supporting and separating the second nonconductive plate from the rear substrate by a predetermined distance,

wherein the rear substrate assembly and the front substrate assembly are combined so that the plurality of carbon nanotubes on the plurality of cathodes project through the plurality of emitter openings at a predetermined distance from the plurality of gates.

3. A field emission array comprising:

a rear substrate assembly including:

a rear substrate;

a plurality of cathodes formed as stripes over the rear substrate; and

a plurality of carbon nanotubes formed on the plurality of cathodes at a predetermined distance; and

a front substrate assembly including:

a front substrate;

a plurality of anodes formed as stripes over the front substrate;

a plurality of phosphors deposited on the plurality of anodes;

a nonconductive plate having a plurality of openings separated by a predetermined distance corresponding to the distance between each of the plurality of anodes;

a plurality of gates formed as stripes perpendicular to the stripes of the plurality of anodes over the nonconductive plate and extending over a plurality of upper sidewalls of the nonconductive plate which are exposed through the plurality of openings in the nonconductive plate; and

a plurality of spacers for supporting and separating the nonconductive plate having the plurality of gates from the rear substrate by a predetermined distance,

wherein the rear substrate assembly and the front substrate assembly are combined so that the plurality of carbon nanotubes on the plurality of cathodes project through the plurality of emitter openings at a predetermined distance from the plurality of gates.

4. A method for fabricating a field emission array, comprising:

forming a rear substrate assembly including:

a rear substrate;

a plurality of cathodes formed as stripes over the rear substrate; and

a plurality of carbon nanotubes formed on the plurality of cathodes at a predetermined distance;

forming a front substrate assembly including:

a front substrate;

a plurality of anodes formed as stripes over the front substrate;

a plurality of phosphors deposited on the plurality of anodes;

at least one nonconductive plate having a plurality of openings separated by a predetermined distance corresponding to the distance between each of the plurality of anodes;

a plurality of gates formed as stripes perpendicular to the stripes of the plurality of anodes on the at least one nonconductive plate with a plurality of emitter openings corresponding to the plurality of openings in the at least one nonconductive plate; and

a plurality of spacers for supporting and separating the at least one nonconductive plate having the plurality of gates from the rear substrate by a predetermined distance; and

combining the rear substrate assembly and the front substrate assembly so that the plurality of carbon nanotubes on the plurality of cathodes project through the emitter openings at a predetermined distance from the plurality of gates.

5. The method of claim 4, wherein forming the rear substrate assembly comprises:

depositing a metal layer over the rear substrate by thin film formation;

patterning the metal layer into the plurality of cathodes as stripes; and

depositing the plurality of carbon nanotubes on the plurality of cathodes at a predetermined distance.

6. The method of claim 4, wherein forming the front substrate assembly comprises:

depositing a metal layer over the front substrate;

patterning the metal layer into the plurality of anodes as stripes;

depositing the plurality of phosphors on the plurality of anodes;

forming the plurality of gates as stripes on the at least one nonconductive plate; and

combining the at least one nonconductive plate having the plurality of gates with the front substrate having the plurality of anodes and the plurality of phosphors using the plurality of spacers so that the at least one nonconductive plate and the front substrate are separated by a predetermined distance.

7. The method of claim 6, wherein forming the plurality of gates as stripes on the at least one nonconductive plate comprises:

forming a plurality of openings separated by a predetermined distance in the at least one nonconductive plate; and

depositing a metal layer over the at least one nonconductive plate having the plurality of openings and patterning the metal layer into the plurality of gates as stripes having the plurality of emitter openings corresponding to the plurality of openings in the at least one nonconductive plate.

8. The method of claim 6, wherein forming the gates as stripes on the at least one nonconductive plate further comprises:

forming a plurality of openings separated by a predetermined distance in a first nonconductive plate;

depositing a metal layer on the first nonconductive plate having the plurality of openings and patterning the metal layer into the plurality of gates as stripes having a plurality of emitter openings corresponding to the plurality of openings in the first nonconductive plate; and

mounting a second nonconductive plate having a plurality of openings on the first nonconductive plate having the plurality of gates such that the plurality of openings of the second nonconductive plate correspond to the plurality of emitter openings.

9. The method of claim 6, wherein forming the gates as stripes on the at least one nonconductive plate comprising:

forming a plurality of openings separated by a predetermined distance in a first nonconductive plate;

depositing a metal layer by a spint method on the top and upper sidewalls of the first nonconductive plate which are exposed through the plurality of openings; and

patterning the metal layer into the plurality of gates as stripes having a plurality of emitter openings corresponding to the openings in the first nonconductive plate.